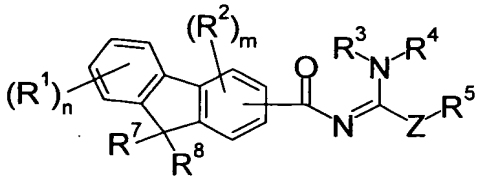
Claim

1. A fluorene derivative represented by the following general formula (I) or a pharmaceutically acceptable salt thereof,



(I)

(symbols in the formula represent the following meanings,

R^1 and R^2: the same or different from each other and each represents $-R^0$, a lower alkenyl, a lower alkynyl, a halogen, $-OH$, $-O-R^0$, $-O-CO-R^0$, $-NH_2$, $-NR^6-R^0$, $-CN$, $-NO_2$, $-CHO$, $-CONH_2$, $-CO-NR^6-R^0$, $-CO_2H$, $-CO_2-R^0$, $-CO-R^0$, $-NR^6-CO-R^0$, $-NR^6-CO_2-R^0$, $-O-CO-NR^6-R^0$, $-SH$, $-S(O)_p-R^0$, $-S(O)_2-NH_2$, $-S(O)_2-NR^6-R^0$, $-NR^6-S(O)_2-R^0$, $-R^{00}-O-CO-R^0$, $-R^{00}-NR^6-R^0$, $-R^{00}-CN$, $-R^{00}-CONH_2$, $-R^{00}-CO-NR^6-R^0$, $-R^{00}-CO_2H$, $-R^{00}-CO_2-R^0$, $-R^{00}-CO-R^0$, $-R^{00}-NR^6-CO-R^0$, $-R^{00}-NR^6-CO_2-R^0$, $-R^{00}-O-CO-NR^6-R^0$, a cycloalkyl or a nitrogen-containing saturated hetero ring, wherein said nitrogen-containing saturated hetero ring may be substituted with 1 or 2 substituent groups selected from the group consisting of a lower alkyl, $-OH$, $-O-R^0$, $-NH_2$, $-NR^6-R^0$ and oxo (=O);

R^0: the same or different from one another and each represents a lower alkyl which may be substituted with one or more substituent groups selected from the group

consisting of -OH, -O-C_{1-4} alkyl, -NH_2, -NR^6-C_{1-4} alkyl and a halogen;

R^6: the same or different from one another and each represents a lower alkyl or H;

R^{00}: the same or different from one another and each represents a lower alkylene;

p: 0, 1 or 2;

n: 0, 1 or 2;

m: 0 or 1;

R^7 and R^8: the same or different from each other and each represents -H, -R^0, a halogen, -OH, -O-R^0, -NH_2, -NR^6-R^0, -NR^6-CO-R^0, -O-R^{00}-OH, -O-R^{00}-O-R^0, a cycloalkyl or an oxygen-containing saturated hetero ring, or R^7 and R^8 may together form a group selected from the group consisting of oxo (=O), =N-OH, =N-OR^0 and tetrahydropyranylidene, or R^7 and R^8 may together form a lower alkylene which may be interrupted by 1 or 2 divalent groups selected from the class consisting of -O-, -$S(O)_p$-, -NR^6- and -$CONR^6$-, and may form a 3- to 8-membered ring together with the C atom to which they are linked;

Z: -NH-;

R^3: -H or R^0; and

R^4 and R^5: the same or different from each other and each represents -H, -R^0, -CO_2-R^0, or -CO-R^0, or R^4 and R^5 may together form a divalent group and may form a 5-membered hetero ring together with the -N-C-Z- group to which R^4 and

R^5 are linked, wherein Z may be -O- or S-, and said 5-membered ring may be substituted with 1 or 2 substituent groups selected from a lower alkyl, -OH, -O-R^0, -NH_2, -NR^6-R^0 and oxo (=O)).

2. The fluorene derivative or pharmaceutically acceptable salt thereof described in claim 1, wherein R^3 is -H or R^0, and R^4 and R^5 are -H or R^0.

3. The derivative or pharmaceutically acceptable salt thereof described in claim 1, wherein each of R^3, R^4 and R^5 is -H.

4. The derivative or pharmaceutically acceptable salt thereof described in claim 3, wherein R^7 and R^8 may be the same or different from each other and each represents -H, -R^0, -OH, -O-R^0, -O-R^{00}-OH or -O-R^{00}-O-R^0, or R^7 and R^8 together form oxo group.

5. The derivative or pharmaceutically acceptable salt thereof described in claim 3, wherein R^7 and R^8 together form a "lower alkylene which may be interrupted by 1 or 2 divalent groups selected from the class consisting of -O-, -$S(O)_p$-, -NR^6- and -$CONR^6$", and form a 3- to 8-membered ring together with the C atom to which they are linked.

6. The derivative or pharmaceutically acceptable salt thereof described in claim 1, which is selected from the group consisting of N-(diaminomethylene)-9-hydroxy-9H-fluorene-2-carboxamide, 9-chloro-N-(diaminomethylene)-9H-fluorene-2-carboxamide, N-(diaminomethylene)-9-(hydroxyimino)-5-(hydroxymethyl)-9H-fluorene-2-carboxamide, 8-chloro-N-(diaminomethylene)-9-hydroxy-9H-fluorene-2-carboxamide, N-(diaminomethylene)-9-hydroxy-9-methyl-9H-fluorene-2-carboxamide, N-(diaminomethylene)-9-hydroxy-9-methyl-9H-fluorene-2-carboxamide (optically active substance A), N-(diaminomethylene)-9-hydroxy-9-methyl-9H-fluorene-2-carboxamide (optically active substance B), N-(diaminomethylene)spiro[1,3-dithiolane-2,9'-fluorene]-2'-carboxamide, N-(diaminomethylene)-4',5'-dihydro-3'H-spiro[fluorene-9,2'-furan]-2-carboxamide, N-(diaminomethylene)-4',5'-dihydro-3'H-spiro[fluorene-9,2'-furan]-2-carboxamide (optically active substance A), N-(diaminomethylene)-4',5'-dihydro-3'H-spiro[fluorene-9,2'-furan]-2-carboxamide (optically active substance B), N-(diaminomethylene)spiro[cyclopropane-1,9'-fluorene]-2'-carboxamide, N-(diaminomethylene)-9-methoxy-9-methyl-9H-fluorene-2-carboxamide, N-(diaminomethylene)-9-ethyl-9-methoxy-9H-fluorene-2-carboxamide, N-(diaminomethylene)-5-fluoro-9-hydroxy-9-methyl-9H-fluorene-2-carboxamide, N-(diaminomethylene)-5-fluoro-9-hydroxy-9-methyl-9H-fluorene-2-carboxamide (optically active substance A), N-

(diaminomethylene)-5-fluoro-9-hydroxy-9-methyl-9H-fluorene-2-carboxamide (optically active substance B), N-(diaminomethylene)-5'-fluorospiro[1,3-dithiolane-2,9'-fluorene]-2'-carboxamide and N-(diaminomethylene)-5-fluoro-9-methoxy-9-methyl-9H-fluorene-2-carboxamide.

7. A pharmaceutical composition comprising the derivative or pharmaceutically acceptable salt thereof described in claim 1 and a pharmaceutically acceptable carrier.

8. The pharmaceutical composition described in claim 7, which is a 5-HT_{2B} receptor and 5-HT_7 receptor dual antagonist.

9. The pharmaceutical composition described in claim 7, which is a prophylactic antimigraine agent.

10. Use of the derivative or pharmaceutically acceptable salt thereof described in claim 1 for producing a 5-HT_{2B} receptor and 5-HT_7 receptor dual antagonist or a prophylactic antimigraine agent.

11. A method for preventing migraine, which comprises administering a therapeutically effective amount of the

fluorene derivative or pharmaceutically acceptable salt thereof described in claim 1 to a patient.